

ABSTRACT OF THE DISCLOSURE

METHOD AND SYSTEM FOR CONTROLLING
BEAM SCANNING IN AN ION IMPLANTATION DEVICE

5

A method and apparatus for controlling ion beam scanning in an ion implanter is disclosed.

10 Before an implant process is commenced, a scan waveform to create a uniform distribution along a magnetic scan axis is determined, using a travelling Faraday detector (24). Charge data from the travelling Faraday (24) is collected into a small, finite number of channels and this is used to create a
15 histogram of collected charge vs. beam crossing time. This is in turn used to correct a target scan velocity to compensate for any dose non-uniformity.

The target scan velocity is used as a first input to a fast feedback loop. A second input is obtained by
20 digitizing the output of an inductive pickup in the magnet of the magnetic scanner in the ion implanter. Each input is separately integrated and Fast Fourier Transformed Error coefficients F_{error} are obtained by dividing Fourier coefficients from the target scan
25 velocity by Fourier coefficients from the inductive pickup signal. These error coefficients are used to control the command waveform to the magnetic scanner in the ion implanter.

30 [Figure 2]